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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,403	07/24/2003	Alistair C.H. Rowe	16791	1063

7590 09/19/2005

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EXAMINER

DAVIS, OCTAVIA L

ART UNIT PAPER NUMBER

2855

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626,403

Applicant(s)

ROWE ET AL.

Examiner

Octavia Davis

Art Unit

2855

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 23-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-17, 23-27, 30 and 31 is/are allowed.
- 6) ☒ Claim(s) 18, 28, 29 and 32-38 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 9/9/04.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/1/05 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 18 is rejected under 102(b) as being anticipated by Soares.

Regarding claim 18, Soares discloses a Schottky-barrier semiconductor device comprising a semiconductor layer 105 and an adjacent contacts 110, 115 including a layer of metal 120 at an interface 125, the interface being located between the contacts and the leaf substrate 105 at a top side portion of the substrate and along a bottom side portion of the contacts 110, 115, a strain is imparted at the lower surface of the substrate 105 through an epoxy causing a proportional strain in a bottommost section of the substrate which changes a resistance and the change in voltage is

Art Unit: 2855

measured that is indicative of the change in resistance (See Col.6, lines 34 – 36, Col. 7, lines 38 – 54 and Col. 8, lines 1 – 11).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 28 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soares in view of Aslam et al.

Regarding claims 28, Soares discloses all of the limitations of these claims except for a teaching that the semiconductor film comprises Indium Antimonide and a plate structure is formed by the film and the metal contacts. However, Aslam et al disclose a force detecting microsensor comprising a semiconductor member 14 formed of indium antimonide (See Col. 3, lines 36 – 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Soares according to the teachings of Aslam et al for the purpose of, providing a sensor that advantageously provides greater current variations which changes in applied force and provided redundancy which alleviates yield and device failure problems.

Regarding claim 33, Soares discloses all of the limitations of these claims except for teachings that a filling factor is approximately 9/16. However, in Aslam et al, a membrane 27 substantially fills an aperture 26 (See Col. 3, lines 43 – 50 and Col. 4, lines 26 – 30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Soares according to the teachings of Aslam et al for the purpose of, utilizing the membrane to fill the aperture and applying a force to displace the membrane such that the spacing between the membrane and a cone changes indicating of a change in the magnitude of a tunneling current (See Aslam et al, Col. 4, lines 26 – 34).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 29, 32, 34 – 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soares in view of Aslam et al and Kash et al.

Regarding claims 29, 32, 34 and 37, Soares discloses all of the limitations of these claims except for a teaching that a plate is formed by an inhomogeneous semiconductor film and a metal shunt and a mesa is grown on a semi-insulating substrate. However, Kash et al disclose semiconductor devices having strain induced lateral confinement of charge carriers comprising a semiconductive layer 10 and a metal layer 14 forming a plate structure, a microstructure formed from a planar sample, the sample being grown on a semi-insulating substrate 10 that is imparted an inhomogeneous strain and uniformly exposed mesas (not shown) located adjacent to the microstructure patterns (See Col. 3, lines 67 – 68, Col. 4, lines 1 – 11 and 39 – 42 and Col. 6, lines 1 – 15 and 16 - 41

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Soares according to the teachings of Kash et al for the purpose of, creating a corresponding strain pattern in a semiconducting substrate to provide spatial confinement of electrons and holes (See Kash et al, Col. 3, lines 17 – 30).

Regarding claims 35 and 38, in Soares, the strain causes a change in conductance in the semiconductor device (See Col. 7, lines 5 – 17).

Regarding claim 36, Soares discloses all of the limitations of these claims except for a teaching that the semiconductor film comprises Indium Antimonide. However, Aslam et al disclose a force detecting microsensor comprising a semiconductor member 14 formed of indium antimonide (See Col. 3, lines 36 – 67).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Soares according to the teachings of Aslam et al for the purpose of, providing a sensor that advantageously provides greater current variations which changes in applied force and provided redundancy which alleviates yield and device failure problems.

Allowable Subject Matter

8. Claims 1 – 17, 23 – 27, 30 and 31 are allowed.

Response to Arguments

9. Applicant's arguments filed 9/10/05 have been fully considered but they are not persuasive. In response to applicant's argument that Soares does not disclose *a semiconductor film and an adjacent metal shunt forming a first interface between the semiconductor film and the adjacent metal shunt, the semiconductor*

Art Unit: 2855

film and metal shunt being deposited on a substrate, it is the examiner's position that in Soares, the flexible lightly-doped semiconductor substrate leaf 105 (*semiconductor film acting as a substrate*) is connected to the adjacent metal contact 110, the contact 110 comprises layers of metal 120, 130 (*metal shunt*) at an interface 125 which is formed between the semiconductor substrate leaf 105 and the metal contact 110, thus the reference still stands.

Conclusion

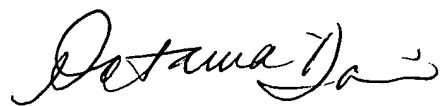
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brasen et al (4,725,877) disclose a metallized semiconductor device including an interface layer.

Kumar et al (6,066,561) disclose an apparatus and method for electrical determination of delamination at one or more interfaces within a semiconductor wafer.

Any inquiry concerning this communication should be directed to examiner Octavia Davis at telephone number 571.272.2176. The examiner can normally be reached on Maxiflex.

If attempts to teach the examiner by telephone are unsuccessful, the examiners' supervisor Edward Lefkowitz, can be reached on 571.272.2180. The fax phone number for the organization where this application or proceeding is assigned is 703.872.9306.


OD/2855

9/14/05